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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Terutake HAYASHI et al.**

Group Art Unit: **2872**

Serial No.: **10/529,395**

Examiner:

Filed: **March 28, 2005**

Confirmation No.: **6731**

For: **CONFOCAL MICROSCOPE, METHODS OF FLUORESCENT AND  
POLARIZED LIGHT MEASUREMENT USING THE SAME**

Attorney Docket Number: **052310**

Customer Number: **38834**

**SUBMISSION OF ENGLISH TRANSLATION OF IPRP**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

December 14, 2005

Sir:

Submitted herewith is an English translation of the International Preliminary Report on Patentability for the above-identified U.S. patent application.

If any additional fees are due in connection with this submission, please charge our Deposit Account No. 50-2866.

Respectfully submitted,

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From the INTERNATIONAL BUREAU

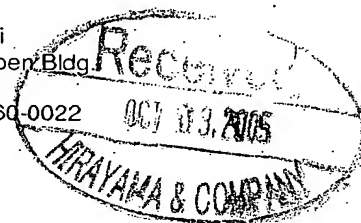
**PCT**

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY  
(CHAPTER I OR CHAPTER II  
OF THE PATENT COOPERATION TREATY)

(PCT Rule 72.2)

To:

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Date of mailing (day/month/year) 29 September 2005 (29.09.2005)	
Applicant's or agent's file reference PCT086JST	IMPORTANT NOTIFICATION
International application No. PCT/JP2003/011935	International filing date (day/month/year) 18 September 2003 (18.09.2003)
Applicant JAPAN SCIENCE AND TECHNOLOGY AGENCY et al	

**1. Transmittal of the translation to the applicant.**

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

**2. Transmittal of the copy of the translation to the elected Offices.**

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

CN, EP, KR

The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

JP, US

**3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).**

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

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## PATENT COOPERATION TREATY

PCT/JP2003/011935



## PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT086JST	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/JP2003/011935	International filing date (day/month/year) 18 September 2003 (18.09.2003)	Priority date (day/month/year) 30 September 2002 (30.09.2002)
International Patent Classification (IPC) or national classification and IPC G02B 21/00, 21/06, G01N 37/00, C12N 15/09		
Applicant JAPAN SCIENCE AND TECHNOLOGY AGENCY		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 13 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒ Box No. I Basis of the report

☐ Box No. II Priority

☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV Lack of unity of invention

☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐ Box No. VI Certain documents cited

☐ Box No. VII Certain defects in the international application

☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 17 March 2004 (17.03.2004)	Date of completion of this report 21 February 2005 (21.02.2005)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2003/011935

## Box No. 1 Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ The international application as originally filed/furnished
- ☒ the description:
- pages \_\_\_\_\_ 1-3,7-30 \_\_\_\_\_, as originally filed/furnished
- pages\* \_\_\_\_\_ 4,4/1,5,5/1,6,6/1 \_\_\_\_\_ received by this Authority on \_\_\_\_\_ 20 July 2004 (20.07.2004)
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- pages \_\_\_\_\_ 2,6-18,20-21,23 \_\_\_\_\_, as originally filed/furnished
- pages\* \_\_\_\_\_, as amended (together with any statement) under Article 19
- pages\* \_\_\_\_\_ 1,3,19,22,24-28 \_\_\_\_\_ received by this Authority on \_\_\_\_\_ 20 July 2004 (20.07.2004)
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- pages \_\_\_\_\_ 1/21-21/21 \_\_\_\_\_, as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, Nos. \_\_\_\_\_ 4-5 \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)):

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP03/11935

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

## 1. Statement

Novelty (N)	Claims	3, 6-28	YES
	Claims	1-2	NO
Inventive step (IS)	Claims	3, 6-23	YES
	Claims	1-2, 24-28	NO
Industrial applicability (IA)	Claims	1-3, 6-28	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

## Claims 1 and 2

Document 1 [JP, 10-318733, A (Takaoka Electric Mfg. Co., Ltd.), 4 December, 1998 (04.12.98), claim 1, Fig. 1, and page 3, column 4, lines 15-23 of the specification] cited in the ISR describes a constitution in which the respective pixels in a matrix of liquid crystal elements are controlled to make the polarization directions of plural adjacent pairs of beams of a multi-beam confocal microscope respectively perpendicular to each other, for thereby inhibiting the inter-beam crosstalk.

In the written amendment, the applicant newly adds a constitution in which each of the respective pixels in "a matrix of liquid crystal elements" is provided in response to each micro-lens, and insists to the effect that the liquid crystal cell 20 described in document 1 is different from the constitution of the matrix of liquid crystal elements in the invention of the present application.

However, each of the pixels of the liquid crystal cell described in document 1 is also provided in response to each lens of the micro-lens array section 6, and the constitution in which the polarization directions of illumination beams passing through the adjacent pixels are perpendicular to each other is also described in document 1 (page 4, column 6, lines 18-24 of the specification).

Therefore, the above-mentioned insistence of the applicant is not considered to be correct and cannot be employed.

So, the subject matters of claims 1 and 2 do not appear to be novel or to involve an inventive step in view of the above description of document 1.

## Claims 24-28

Document 3 [JP, 2001-108684, A (Hitachi, Ltd.), 20 April, 2001 (20.04.01)] cited in the ISR describes a technique in which a multi-beam is used for fluorescent penetrant inspection of DNA chips.

Therefore, it is considered to be obvious for a person skilled in the art to use the confocal microscope described in document 1 for the fluorescent penetrant inspection of DNA chips.

## Claim 3

None of the documents cited in the ISR describes or suggests the constitution in which plural foci are placed on an image pickup element while polarization directions of beams are kept perpendicular to each other.

Therefore, the subject matter of claim 3 is not considered to be obvious.

## Claims 6-23

None of the documents cited in the ISR describes or suggests the constitution in which in addition to making the polarization directions of respectively adjacent scanning beams perpendicular to each other, (1) illumination light is intensity-modulated at a predetermined modulation frequency, and (2) the light intensity-modulated signal of reflected light is converted in frequency for detection.

Therefore, the subject matters of claims 6-23 are not considered to be obvious.